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ABSTRACT

This study employed a psychometric paradigm to explore how young people think about risk. Forty-one high school students were asked to rate 30 activities on 14 characteristics such as personal risk, perceived control over the risk, peer influence, etc. The study also included a questionnaire on actual participation in each of the 30 activities. Furthermore, 28 selected items from Zuckerman's sensation seeking scale were included to determine a possible correlation between sensation seeking, perceived risk, and actual participation. Findings showed that those adolescents who engaged in a risky activity had very different perceptions on a wide variety of risk characteristics from those who did not. Also, those individuals who engaged in destructive behavior obtained higher scores on Zuckerman's sensation seeking scale. Implications for theory and future research are discussed. Four tables and three figures are included. (Author)

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# Adolecent Risk Perception: A View of Risk Taking Behavior By Teens

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# ABSTRACT

The present study employs a psychometric paradigm to explore how young people think about risk. Forty-one high school students were asked to rate 30 activities on 14 characteristics such as personal risk, perceived control over the risk, peer influence etc. The study also included a questionnaire on actual participation in each of the 30 activities. Furthermore, 28 selected items from Zuckerman's sensation seeking scale were included to determine a possible correlation between sensation seeking, perceived risk, and actual participation. Findings showed that those adolescents who engaged in a risky activity had very different perceptions on a wide variety of risk characteristics from those who did not. Also, those individuals who engaged in destructive behaviors obtained higher scores on Zuckerman's sensation seeking scale. Implications for theory and future research are discussed.

# METHODOLOGY

## Subjects

Subjects for this study were 41 high school students from two high schools in Eugene, Oregon. Of those subjects who indicated gender, 25 were females and 15 were males. Their mean age was 15.5 years (range 14 to 18). Each subject was paid $10 for participation. Participants were assured of complete confidentiality.

## Design

Quantitative judgments were made for each of the 30 items shown in Table 1. These items included 11 items considered to represent problem behavior (e.g., smoking marijuana, using cocaine, etc.) and 19 items representative of what might be considered more constructive risk-taking behaviors (e.g., swimming, riding a bicycle, etc.). The goal in selecting these items was to provide a comprehensive context in which to compare and evaluate risk perceptions. Items were selected according to several criteria including prevalence, popularity and presumed importance from a risk standpoint. Some items, however, carry much greater risks than others (e.g., using crack vs. ingesting caffeine).

Each of the 30 items was rated by each respondent on 13 characteristics. Some of these characteristics were selected because of their importance in previous studies of risk perception (e.g. knowledge, warning sign, etc.), whereas others were selected because of their potential relevance to adolescent behavior (e.g. peer influence, admiration, etc.). The full set of rating scales for the characteristics is shown in Table 2. All 30 activities were rated on one characteristic before the next characteristic was considered.

The present study also asked subjects to indicate whether or not they themselves had engaged in each of the 30 activities during the previous six months. Furthermore, 28 selected items from Zuckerman's sensation seeking scale were included to determine the correlation between sensation seeking, perceived risk and actual usage. The 28 sensation seeking items were selected from three of the four factor analytically derived dimensions of sensation seeking. The distribution was as follows: 13 items from the thrill and adventure seeking dimension, 9 items from the experience seeking dimension and 6 items from the disinhibition dimension.

# RESULTS

Table 3 presents the intercorrelations among 11 high-risk activities across 41 subjects. A positive correlation among a pair of activities indicates that people who do one thing also tend to do the other. The finding that 44 out of 55 correlations among the 11 high-risk activities were positive, strongly suggests a syndrome of problem behavior. For example, young people who were found to drink excessive amounts of alcohol (five or more drinks at one occasion) were also likely to smoke cigarettes (r=.59) and to use marijuana (r=.51). Furthermore, a high correlation was observed between the use of cocaine and uppers.

**Factor Analysis (total sample)**

The intercorrelations among all 14 of the risk characteristics (personal risk, risk to peers, etc.) were subjected to a principle component factor analysis. The analysis produced two uncorrelated factors, with the first factor accounting for 68% of the variance among the risk characteristics and the second factor accounting for 15% of the variance. Rotated factor loadings, indicating the degree to which each risk characteristic correlated with each factor, are shown in Table 4. The pattern of loadings indicates that Factor 1 was primarily determined by perceived risk, fear, and perceived seriousness of consequences, whereas factor 2 was determined by admiration and knowledge and, to a lesser extent, peer influence. The most admired activities (driving, contact sports, skiing, and sex) were also judged to have risks that were relatively well known, and many of the least admired activities (eating disorders, use of pain relievers) were judged to pose risks that were not well known.

Factor scores were computed for each of the 30 activities by weighting the ratings on each risk characteristic proportional to the importance of the characteristic for the factor and summing over all characteristics. This weighted sum gives a particular activity a score that is an amalgamation of its ratings on the variables that define the factor. The factor scores for each activity are plotted in Figure 1. It is interesting to note that many of the most dangerous activities (upper-right quadrant; both actual danger and perceived risk) are as highly admired as the more socially approved forms of risk taking (upper-left quadrant).

## Comparisons Between Participants and Non-participants

Figure 1 presents the mean scale responses of participants and non-participants for 3 activities across the 4 rating scales. (See table 11 in handout for mean responses of 13 activities across 14 rating scales.) Seventeen activities were not included in the analysis because fewer than 25% of the respondents engaged in them during the 6 months prior to the study. The findings indicate several strong differences in the perceptions of participants and non-participants. Generally participants report greater knowledge of risks, less fear of risks, less personal risk, less risk to peers, greater benefits relative to risks, less seriousness of effects, more personal control over risks, greater peer influence, less desire for regulation, less ability to avoid the activity and higher perceived participation rate. Despite the small sample size, many of the differences, particularly for high-risk behaviors such as drinking alcohol, smoking cigarettes, using marijuana, having 5 or more drinks at one occasion, riding with an intoxicated driver, or engaging in sexual activity, were highly reliable statistically.

The 15 lowest and 15 highest scoring subjects were assigned to two separate groups, labeled low and high self-destructive subjects. Means for each of the 14 risk measures were calculated separately for each group. The means within each group were then intercorrelated across the 30 activities and these correlations were factor analyzed, exactly as had been done for the full sample of subjects (see Figure 2). The analysis resulted in a two-factor solution that was similar for each group and similar to the solution depicted in Figure 2. Risk and admiration again seemed appropriate labels for the factors. However, there were differences between the groups in the location of individual activities within the common factor space (see Figure 3).

A modified index of problematic behaviors was created by summing, for each subject, the number of activities engaged in from among the following set of eight activities: smoking cigarettes, smoking marijuana, drinking five or more drinks, using crack, methamphetamines. or cocaine, riding with an intoxicated driver, or using chewing tobacco. To determine whether this index score could be predicted from subjects risk judgments and perceptions, we averaged the subjects responses across all eight activities for each of the following scales: personal risk, personal control, peer influence, admiration, avoidability.

The results of this analysis showed that three variables entered significantly into the prediction equation. These were peer influence, perceived control and sensation seeking. The multiple correlation between a prediction based on these variables and the index of problem behavior was .78 ($p<.001$).

# DISCUSSION

One message in these data is that a methodology which had reviously only been used to investigate perceived risk in college students or adult populations can also be used with young people. It appears that we have developed a useful psychometric instrument to investigate how young people think about risk. The main limitations of the study were its small sample size and the fact that our sample was not a representative one. Although our results cannot be generalized beyond the specific group of subjects studied here, they nevertheless provide insights worthy of exploration in future studies.

The most general finding from this study is that actual participation in risky activities is related to very distinct cognitive, social and personality factors. From a cognitive perspective, people who engage in the activity report greater knowledge of risks, less fear of risks, less personal risk to self and others, less seriousness of effects, more personal control over risk, less ability to avoid the activity and higher participation in the activity by others.

The finding that those who participate in a given activity also perceive a generally higher participation rate is consistent with the availability heuristic that has been found to determine judgments of frequency or probability (Tversky & Kahneman, 1973). By this heuristic, the estimation of the frequency of a behavior is mediated by the ease with which instances or associations of the behavior can be brought to mind through imagination or recall. Obviously, participants in an activity would have greater ability to recall the activity or imagine it being performed.

From a social perspective, participants report greater peer influence, less desire for regulation of the activity by authorities and greater benefits relative to risks. The importance of peer influence has long been acknowledged as a major variable in adolescent risk taking. In general, young people who engage in high-risk behavior acknowledge to perceive greater support for their risk taking behavior from friends and also report having more friends who engage in such behavior (Jessor & Jessor, 1975). The finding that risk taking may actually provide benefits for the young person requires specific attention.

From a personality perspective, these data showed that those individuals who engage in destructive behaviors (e.g. using drugs, smoking cigarettes, drinking alcoholic beverages etc.) also tend to obtain a higher score on Zuckerman's sensation seeking scale. This finding corresponds to previous research which has demonstrated that high sensation seekers tend to engage in a broad range of risk taking behaviors such as drug taking, risky driving and engaging in high-risk sports (Zuckerman, 1980, 1983a, 1983b). Results from this study also point to a problem behavior syndrome. In other words, young people who engage in one form of risk taking behavior (e.g. using marijuana) also tend to engage in another (e.g. smoking cigarettes). These results are in line with previous research, suggesting that problem behaviors during adolescence tend to be interrelated rather than being a collection of independent activities (Jessor, 1984).

The finding that participants in high risk activities generally thought that they could control the risks while at the same time being unable to avoid doing the activity is intriguing. Why do some young people believe they cannot control engagement in an activity, but, once involved, believe they can control its risks? The former belief may stem from sensitivity to peer pressures which may be hard to avoid. The latter belief may point to a "personal fable" of uniqueness and immortality, which gives rise to behavior reflecting an increasing sense of power and which appears to be a typical dimension of adolescent thinking (Seltzer, 1982). So far, the notion of a personal fable has not been empirically verified and future research needs to address the question whether such a fable actually exists, whether it is part of a normal developmental course in adolescence and whether it is more pronounced in some young people than in others.

# TABLE 1. Items Used in the Present Study

**1. Problem behaviors**

Drinking Alcoholic Beverages
Smoking Cigarettes
Smoking Marijuana
Drinking Five Or More Alcoholic Beverages
Using Crack
Taking Methamphetamines
Using Cocaine
Riding In A Car With An Intoxicated Driver
Using Smokeless Tobacco
Binge Eating/Vomiting
Crash, Or Compulsive Dieting

**2. Other behaviors**

Climbing Mountains Or Rocks
Riding Motorcycles
Driving An All-Terrain Vehicle
Swimming
Riding A Bicycle
Playing Contact Sports
Taking Prescription Drugs
Riding Skateboards
Downhill Skiing
Driving A Car
Sunbathing
Using Caffeine
Using Artificial Sweeteners
Using Fireworks
Taking Pain Relievers
Taking Diet Pills
Listening To Loud Music
Having Sex
Hitchhiking

# TABLE 2. Scales On Which the 30 Items Were Rated

**OLD OR NEW RISK**

Is this a new type of risk for people your age, or an old one that has been around for a long time? (1 = very new; 7 = very old)

**KNOWLEDGE OF ADOLESCENTS**

To what extent are the risks associated with this activity known to people your age? (1 = risks not well known; 7 = risks very well known)

**FEAR**

To what extent are the potential risks (dangers) associated with this activity frightening for people your age? (1 = not at all frightening; 7 = very frightening)

**PERSONAL RISK**

If you did this activity, to what extent do you believe that you would be personally at risk of getting hurt or getting sick?
(1 = very much at risk; 7 = not at all at risk)

**RISK TO PEERS**

If some other person your age engaged in this activity, to what extent do you believe that he/she would be at risk of getting hurt or getting sick? (1 = very much at risk; 7 = not at all at risk)

**BENEFITS VS RISKS**

To what extent are the benefits or pleasures provided by this type of activity greater than the risks associated with it? (1 = risks much greater than the benefits; 7 = benefits much greater than the risks).

**SERIOUSNESS OF EFFECTS**

If an accident or something bad happened because of this activity, would you expect the harmful effects to be mild, or serious?
(1 = very mild harm; 7 = very serious harm)

## INFORMATION VALUE

If an accident or something bad happened because of this activity, to what extent would it provide important information to young people that similar or even worse things might happen in the future?
(1 = low information value; 7 = high information value)

## PERSONAL CONTROL

If someone your age did this activity, to what extent could he or she control the risks associated with it? (1 = risks cannot be controlled; 7 = risks can be completely controlled).

## PEER INFLUENCE

To what extent are you influenced by your friends to do this activity?
(1 = not at all influenced; 7 = greatly influenced).

## ADMIRATION

To what extent are teenagers who are doing this activity admired by their peers? (1 = not at all admired; 7 = greatly admired)

## NEED FOR REGULATION

To what extent does this type of activity need to be controlled by parents, school officials, or the law? (1 = little or no regulation needed; 7 = very strict regulation needed)

## AVOIDABILITY

To what extent can a person your age avoid doing this activity?
(1 = cannot be avoided; 7 = can be avoided)

## PERCEIVED PARTICIPATION

What percentage of people your age would you say are doing this activity ? (00 to 100 %)

# TABLE 3. Intercorrelations Among 11 High-Risk Activities Across 41 Subjects

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. DRINKS | 1.000 | | | | | | | | | | | |
| 2. RIWDRUNK | .384 | 1.000 | | | | | | | | | | |
| 3. HITCHIK | .006 | .332 | 1.000 | | | | | | | | | |
| 4. NOCONDOM | .172 | .129 | -.074 | 1.000 | | | | | | | | |
| 5. SEX | .190 | .525 | .153 | .620 | 1.000 | | | | | | | |
| 6. MARIJUAN | .513 | .559 | .256 | .206 | .362 | 1.000 | | | | | | |
| 7. SNUFF | .233 | .227 | -.084 | .882 | .703 | .271 | 1.000 | | | | | |
| 8. CIGARET | .593 | .212 | .089 | .306 | .272 | .453 | .387 | 1.000 | | | | |
| 9. UPPERS | .006 | .332 | -.051 | .307 | .427 | .028 | .262 | .089 | 1.000 | | | |
| 10. COCAINE | .162 | .232 | -.036 | .481 | .298 | .179 | .424 | .232 | .698 | 1.000 | | |
| 11. CRACK | -.154 | .232 | -.036 | -.052 | .298 | -.140 | -.059 | -.108 | .698 | -.025 | 1.000 | |
| 12. SUMITEM | .631 | .702 | .237 | .600 | .752 | .708 | .672 | .655 | .439 | .482 | .130 | 1.000 |

# TABLE 4. Rotated Factor Loadings for Fourteen Risk Characteristics (Total Sample)

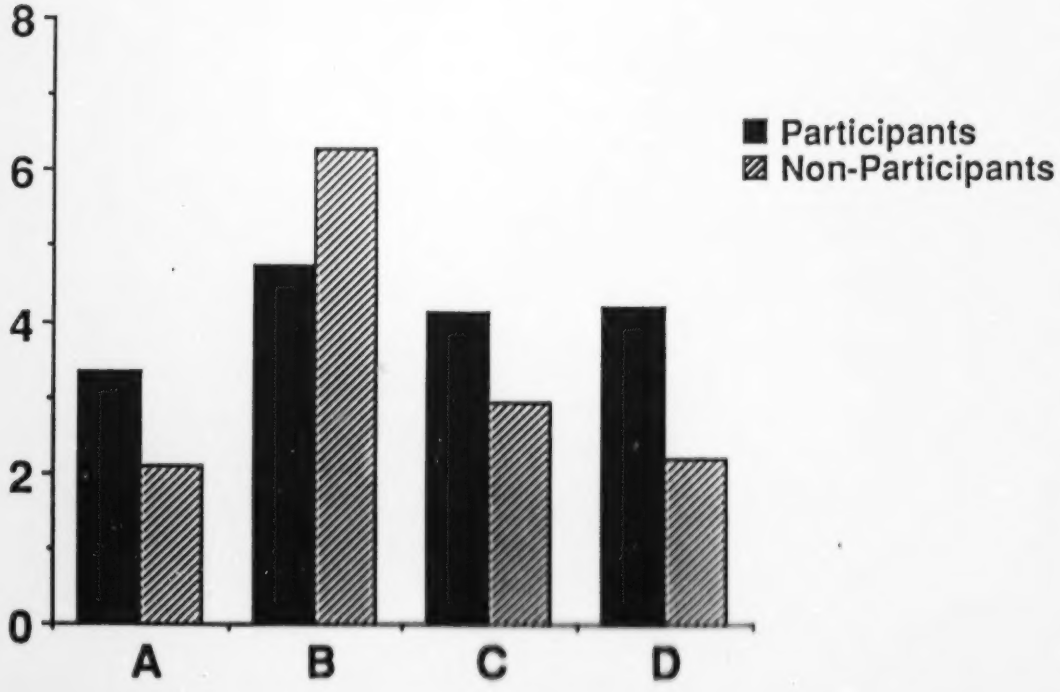
| Characteristic | Factor 1 | Factor 2 |
|---|---|---|
| Personal Risk | .98 | -.11 |
| Risk to Peers | .98 | -.08 |
| Fear | .97 | -.11 |
| Seriousness | .94 | .14 |
| Information Value | .94 | -.11 |
| Benefits Vs Risks | .92 | -.25 |
| Regulation | .92 | -.17 |
| Personal Control | -.89 | .24 |
| Perceived Participation | -.76 | .39 |
| Avoidability | .74 | -.32 |
| New/Old | -.59 | .53 |
| Admiration | -.20 | .84 |
| Knowledge | .28 | .81 |
| Peer Influence | -.47 | .76 |

Note. In computing this table, scale values on personal risk, risk to peers, and benefits vs risks have been reversed so that a highscore indicates high risk or risk greater than benefits.

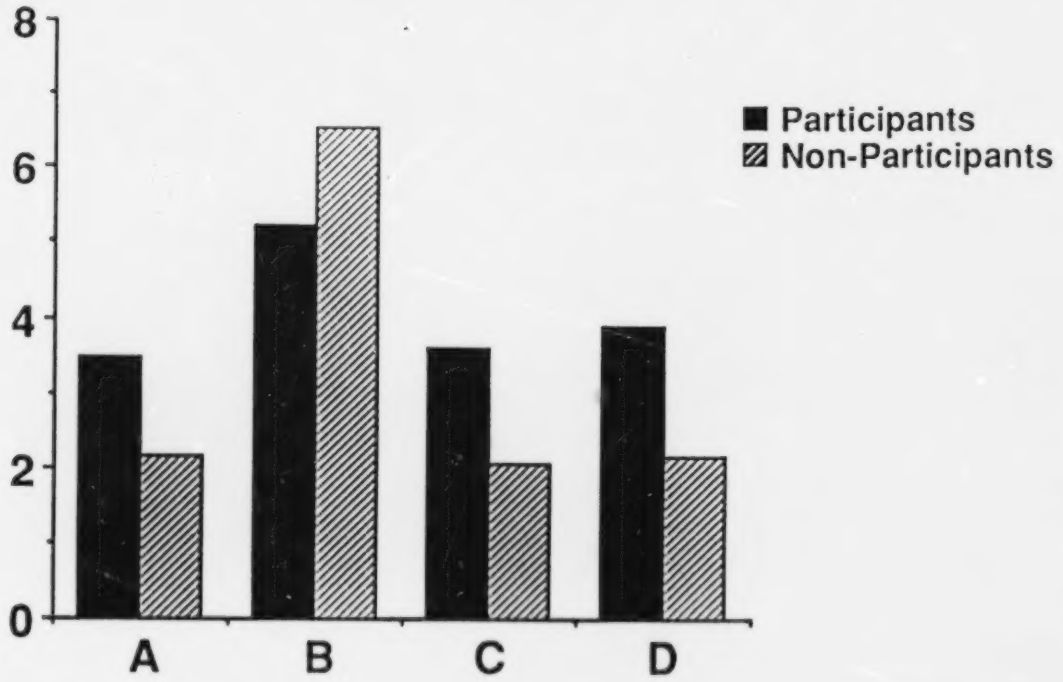
# Figure 1. Mean Scale Ratings for Participants and Non-Participants on Selected Activities

A. Risk to peers
B. Seriousness of effects
C. Personal control
D. Peer influence

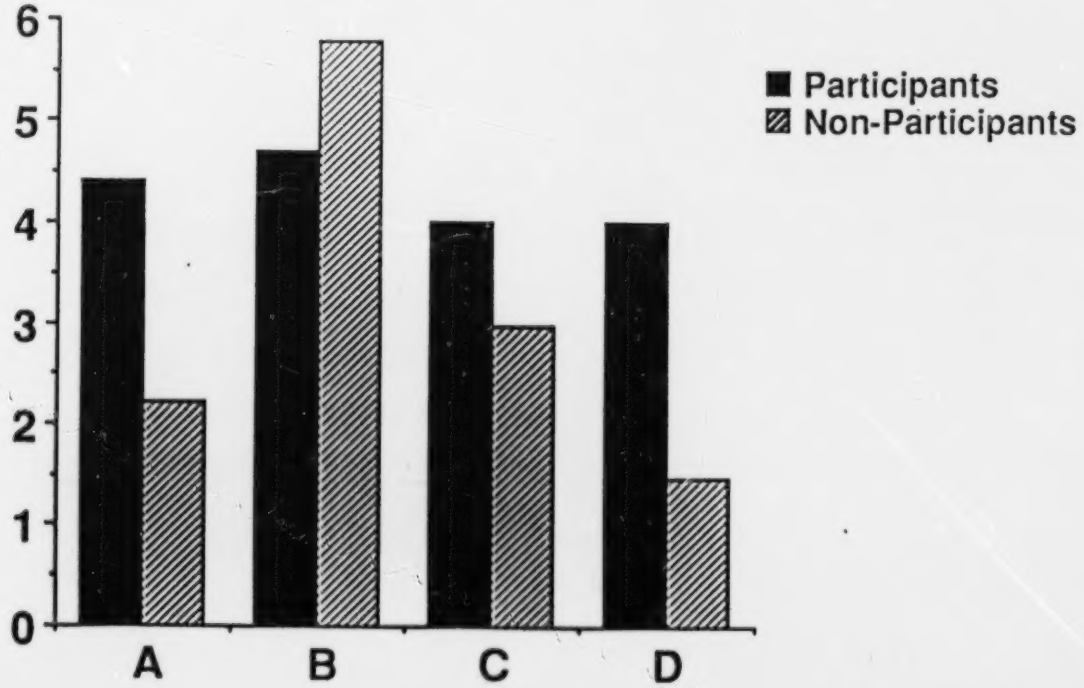
1. Smoke Marijuana



## 2. More than 5 drinks




## 3. Smoke Cigarettes



## FIGURE 2. FACTOR PLOT: 14 TEEN RISK SCALES (ALL 41 SUBJECTS INCLUDED)

# FIGURE 3. FACTOR PLOT: LOW (1) AND HIGH (2) SELF DESTRUCTIVE SUBJECTS